SocketWireless® Wi-Fi®
MT800SWM
&
MultiConnect® WF
MTS2WFA

AT Commands
Reference Guide

MultiTech® Systems

AT Commands for the following products:
SocketWireless Wi-Fi (MT800SWM)
MultiConnect WF, a Serial-to-Wi-Fi Device Server (MTS2WFA)

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Revisions

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A	02/13/07	Initial release.
B	05/15/07	Updated the Technical Support contact list. Changed the A\ command to A/.
	06/29/07	Removed a duplicate Reset command.
	08/22/07	Updated for firmware 1.2x Added #WEP?, #WEPKEYID, #WLANPOWERSAVE, #WLANDOZE, #WLANACTIVATE, #WLANROAM, #WLANASSOCINFO, #TCPAUTOLISTEN, #UART?, #BOOTMSG commands.
C	11/09/07	Added the *MultiConnect WF*, a Serial-to-Wi-Fi Device Server, as a product that uses these commands.
D	01/11/08	Added that the #SMTPPUTMAIL command will request the message body to be entered. Added a space before the **-B** in the command #SMTPPUTMAIL -B

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Chapter 1 – IP Commands

#IPDEFGW – Default Gateway

Description: Sets the default gateway address. The view command shows whether the address is statically configured or obtained from the DHCP server.

Syntax: Set Value: **AT#IPDEFGW=<value>**
View Value: **AT#IPDEFGW?**

Values: IP address in dotted decimal notation (xxx.xxx.xxx.xxx)

Default Value: 192.168.1.1

#IPDHCP – DHCP Client

Description: Enables or disables DHCP client. If DHCP client is enabled, the module will take the IP address from the DHCP server. If DHCP client is disabled, the module will take the static IP address configured for the module. The view command shows whether the address is statically configured or obtained from the DHCP server.

Syntax: Set Value: **AT#IPDHCP=<value>**
View Value: **AT#IPDHCP?**

Values: 1: enable
0: disable

Default Value: 0: disable

#IPADDR – Static IP Address

Description: Sets the local static IP address. The view command shows whether the address is statically configured or obtained from the DHCP server.

Syntax: Set Value: **AT#IPADDR=<value>**
View Value: **AT#IPADDR?**

Values: IP address in dotted decimal notation (xxx.xxx.xxx.xxx)
255 is Maximum Value in an Octate

Default Value: 192.168.1.100

#IPNETMASK – Subnet Mask

Description: Sets the subnet mask.

Syntax: Set Value: **AT#IPNETMASK=<value>**
View Value: **AT#IPNETMASK?**

Values: IP address in dotted decimal notation (xxx.xxx.xxx.xxx)
255 is maximum value in an Octate

Default Value: 255.255.255.0

#IPDNSSERV1 – DNS Server 1

Description: In order to translate the server names from literal format into IP addresses, the TCP/IP stack software implements the Domain Name System (DNS) protocol. The DNS Server IP address must be specified for use by the TCP/IP stack software.

Syntax: Set Value: **AT#IPDNSSERV1=<value>**
View Value: **AT#IPDNSSERV1?**

Values: 32-bit number in dotted-decimal notation (i.e., xxx.xxx.xxx.xxx)

Default Value: 202.56.215.6

#IPDNSSERV2 – DNS Server 2

Description: In order to translate the server names from literal format into IP addresses, the TCP/IP stack software implements the Domain Name System (DNS) protocol. The DNS Server IP address must be specified for use by the TCP/IP stack software. This secondary DNS server is used in the case where the primary DNS server does not respond to a request.

Syntax: Set Value: **AT#IPDNSSERV2=<value>**
View Value: **AT#IPDNSSERV2?**

Values: 32-bit number in dotted-decimal notation (i.e., xxx.xxx.xxx.xxx)

Default Value: 202.56.230.6

#IPRELEASE – Release a DHCP Address Assigned by the Server

Description: In order to gracefully release a DHCP address assigned by the server, the module should issue a command of IPRELEASE.

Syntax: Set Value: **AT#IPRELEASE**

#IPRENEW – Renew the DHCP Information from the Server

Description: The DHCP client can renew the DHCP information from the server. On completion of lease time, the DHCP client will automatically renew the DHCP information. Before that, if the client wants to renew the information, it can use this command.

Syntax: Set: **AT#IPRENEW**

#IP? – IP Module

Description: Displays all IP module values/parameters.

Syntax: View Values: **AT#IP?**

Values: IP Address
Subnet mask
Default Gateway
DHCP (Enable/Disable)
Primary DNS IP address
Secondary DNS IP address

Default Value: None

#IPDNSSERV – Configure the DNS Server

Description: Enables DNS. By default, DNS is enabled. Use this command before using DNS services.

Syntax: Set: **AT#IPDNSSERV**

#IPQUERY – Give a Domain Name

Description: Sends a query to the DNS server to resolve the name.

Syntax: Set Value: **AT#IPQUERY=<Host Name>**

Values: Host name in alpha-numeric string format.

Default Value: None

#IPRESOLV – To Observe Whether There Is a Connection with DNS or Not

Description: If the DNS client is successful in resolving the name, this command shows the IP address of the resolved host name. If the DNS client fails to resolve, it shows error message.

Syntax: **AT#IPRESOLV=<Host Name>**

Values: Host name in alpha-numeric string format.

Default Value: None

#IPDNSTABLE – Display DNS Table

Description: This command displays the DNS table.

Syntax: **AT#IPDNSTABLE**

Values: None

Chapter 2 – PING Commands

#PINGNUM – Number of PING Requests

Description: This command sets the number of PING echo requests to issue to PINGREMOTE.

Syntax: Set Value: **AT#PINGNUM=<Value>**
View Value: **AT#PINGNUM?**

Values: From 1 to 255 inclusive

Default Value: 20

#PINGREMOTE – IP Address of Remote Device

Description: This command sets the IP address of remote device to PING.

Syntax: Set Value: **AT#PINGREMOTE=<IP Address>**
View Value: **AT#PINGREMOTE?**

Values: 32-bit number in dotted-decimal notation (i.e., xxx.xxx.xxx.xxx)

Default Value: 192.168.1.1

#PINGSTART – PING

Description: Directs the module to start PING requests to the configured PING remote address. The number of requests to be sent is obtained from the PINGNUM command.

Syntax: Set Value: **AT#PINGSTART**

Values: PINGNUM
PINGREMOTE

Default Value: None

#PING? – PING Module

Description: Displays PING module related information.

Syntax: **AT#PING?**

Values: PINGNUM
PINGREMOTE

Default Value: None

Chapter 3 – WLAN Commands

#WLANSECURITYMODE – Security Mode of WLAN Module

Description: Sets the Wireless LAN security mode.

Syntax: Set Value: **AT#WLANSECURITYMODE =<value>**
View Value: **AT#WLANSECURITYMODE?**

Values: 0: Security Disable
1: WEP64 Security
2: WEP128 Security

Default Value: 0: Security Disable

#WEP64KEY – Keys for WEP64 Security Mode

Description: Sets keys for WEP64 Security mode.

Syntax: Set Value: **AT#WEP64KEYn =<value>**, where "n" can be 1 to 4
View Value: **AT#NWEP64KEYn?**

Values: ASCII text string of 10 hexadecimal characters
e.g., 1234567890

Default Value: 6162636465

#WEP128KEY – Keys for WEP128 Security Mode

Description: Sets keys for WEP64 Security mode.

Syntax: Set Value: **AT#WEP128KEYn =<value>**, where "n" can be 1 to 4
View Value: **AT#WEP128KEYn?**

Values: ASCII text string of 26 hexadecimal characters
e.g., 12345678901234567890123456

Default Value: "12345678901234567890123456"

#WEPKEYID – Set the Default TX Key Index

Description: Sets the default Transmission Key used for data encryption in WEP.

Syntax: Set Value: **AT#WEP128KEY=<value>**

Values: Any value from 1 to 4

Default Value: 1

#WLANNETWORKMODE – WLAN Network Mode

Description: Sets Wireless LAN Network mode.

Syntax: Set Value: **AT#WLANNETWORKMODE =<value>**
View Value: **AT#WLANNETWORKMODE?**

Values: 0: Infrastructure mode
1: Ad – Hoc mode

Default Value: 0: Infrastructure mode

#WLANCOUNTRYCODE – Country Code

Description: Sets country code. Different countries have different restrictions on Wireless LAN parameters like operating channels and transmit power. To make it operable, the country code can be set by using this AT command.

Syntax: Set Value: **AT#WLANCOUNTRYCODE =<value>**
View Value: **AT#WLANCOUNTRYCODE?**

Values: DOMAIN_FCC (For US)
DOMAIN_IC (For Canada)
DOMAIN_ETSI (For Europe)
DOMAIN_SPAIN (For Spain)
DOMAIN_FRANCE (For France)
DOMAIN_MKK (For Japan)

Default Value: DOMAIN_FCC (For US)

#WLANSCANMODE – Scanning Mode

Description: Sets scanning mode. The module can work in both active scanning and passive scanning modes. In active scanning, the module actively sends a probe request to associate with the AP, and in passive scanning, the module waits for a beacon from the AP and then it associates.

Syntax: Set Value: **AT#WLANSCANMODE =<value>**
View Value: **AT#WLANSCANMODE?**

Values: 0: Active scanning
1: Passive scanning

Default Value: 0: Active scanning

#WLANTXPOWER – Maximum Transmit Output Power for the WLAN Module

Description: Sets the maximum transmit output power for WLAN module while communicating.

Syntax: Set Value: **AT# WLANTXPOWER =<value>**
View Value: **AT# WLANTXPOWER?**

Values: Only integer values. Range is 0 dBm to 16 dBm

Default Value: 15

#WLANSSID – SSID of WLAN

Description: Sets the WLAN network SSID.

Syntax: Set Value: **AT#WLANSSID =<value>**
View Value: **AT#WLANSSID?**

Values: Alphanumeric ASCII Text String of up to 32 characters. It will take a blank space also.

Default Value: mt800swm

#WLANDATARATE – WLAN Transmission Data Rate

Description: Sets the WLAN transmission data rate.

Syntax: Set Value: **AT#WLANDATARATE=<value>**
View Value: **AT#WLANDATARATE?**

Values: 1, 2, 5.5, 11 (in Mbps)

Default Value: 11 (in Mbps)

#WLANIBSSCHANNEL – Channel for Ad-Hoc Mode

Description: Sets channel for Ad-Hoc mode.

Syntax: Set Value: **AT#WLANIBSSCHANNEL=<value>**
View Value: **AT#WLANIBSSCHANNEL?**

Values: 1 – 14

Default Value: 9

#WLAN? – WLAN Module

Description: Displays WLAN module-related information.

Syntax: View Values: **AT#WLAN?**

Values:

SECURITYMODE	SSID
NETWORKMODE	IBSSCHANNEL
COUNTRYCODE	DATARATE
SCANMODE	WLANENABLE
TXPOWER(dBm)	MACADDR

Default Value: None

#WLANSETTXPOWER – Transmit Power

Description: Sets transmit power of the WLAN radio.

Syntax: Set Value: **AT#WLANSETTXPOWER=<value in dBm>**

Values: Any value from 0 to 16 dBm

Default Value: 15 dBm

#WLANCONNECT – Connect with AP

Description: Connects the module with AP.

Syntax: Set Value: **AT#WLANCONNECT**

Values: None

#WLANDISCONNECT – Disconnect with AP

Description: Disconnects the module with AP.

Syntax: Set Value: **AT#WLANDISCONNECT**

Values: None

#WLANENABLE – Auto Connect Module with AP

Description: On power up, this parameter determines whether to connect to the AP automatically or manually. Connection to the AP can be established by **AT#WLANCONNECT** command. A value of 0 means the module will not connect to AP automatically. A value of 1 means that on power up the module tries to connect to the AP for configured settings.

Syntax: Set Value: **AT#WLANENABLE=<value>**
View Value: **AT#WLANENABLE?**

Values: 0: Manual connection to the AP
1: Automatic connection to the AP

Default Value: 0

#WLANGETRSSI – Received Signal Strength

Description: This command displays the current received signal strength.

Syntax: Set Value: **AT#WLANGETRSSI**

Values: NA

#WEP? – See the Value of WEP Keys

Description: This command displays the values of the WEP keys.

Syntax: Set Value: **AT#WEP?**

Values: WEP64KEY1:6162636465
WEP64KEY2:6162636465
WEP64KEY3:6162636465
WEP64KEY4:6162636465
WEP128KEY1:12345678901234567890123456
WEP128KEY2:12345678901234567890123456
WEP128KEY3:12345678901234567890123456
WEP128KEY4:12345678901234567890123456

#WLANPOWERSAVE – Enable Power Save at Boot

Description: This command sets the Power Save at the Boot Works after the Power Cycle.

Syntax: Set Value: **AT#WLANPOWERSAVE=<value>**

Values: 0 Power Save Disabled
1 Power Save Enabled

Default: 0

#WLANDOZE – Move Module into Power Save

Description: This command moves the module into Power Save during an active connection.

Syntax: Set Value: **AT#WLANDOZE**

Values: NA

#WLANACTIVATE – Move Module out Power Save

Description: This command moves the module out of Power Save during an active connection.

Syntax: Set Value: **AT#WLANACTIVATE**

Values: NA

#WLANROAM – Enable/Disable Roaming

Description: This command enables/disables automatic roaming of the module when the wireless connection is lost by the Access Point.

Syntax: Set Value: **AT#WLANROAM**

Values: 0 Disable Auto Roam
1 Enable Auto Roam

Default: 1

#WLANASSOCINFO – Display Association Information

Description: This command displays the channel and BSSID if the current association.

Syntax: Set Value: **AT#WLANASSOCINFO**

Values: NA

Chapter 4 – SMTP Commands

#SMTPSENDERNAME – Give Sender Name

Description: The sender's literal name (different from the SENDERADDR /parameter, which is the sender's email address). The parameter will appear in the header of the email sent by the TCP/IP stack software in the field: "From:"

Syntax: Set Value: **AT#SMTPSENDERNAME=<value>**
View Value: **AT#SMTPSENDERNAME?**

Values: Alphanumeric ASCII text string up to 120 characters. The address must be provided in literal format (for instance, "machine 245"). It will take a blank space also.

Default Value: None

#SMTPSENDERADDR – Give Sender Address

Description: To send emails, the TCP/IP stack software must know the email address of the sender. The "sender" is the email identification of the hardware platform itself or the optional attached equipment. This email address will appear in the header of the email sent by the TCP/IP stack software in the field "From:"

Syntax: Set Value: **AT#SMTPSENDERADDR=<value>**
View Value: **AT#SMTPSENDERADDR?**

Values: Alphanumeric ASCII text string up to 120 characters. The address must be provided in literal format (for instance xxxxxxx@web.zyx). It will take a blank space also.

Default Value: None

#SMTPCCRECi – Give the CC Address

Description: The software can send email messages to an additional recipient as a "carbon copy". The value/parameter contains the email address of the additional recipient. This email address will appear in the header of the email sent by the TCP/IP stack software in the field "Cc:"
For a given value n, the CCRECn value/parameter is directly associated with the RECn parameter.

Syntax: Set Value: **AT#SMTPCCRECi=<value> (replace i with 1, 2, or 3)**
View Value: **AT#SMTPCCRECi? (replace i with 1, 2, or 3)**

Values: Alphanumeric ASCII text string up to 120 characters. The address must be provided in literal format (for instance xxxxx@web.com). It will take a blank space also.

Default Value: None

#SMTPDOMAIN – Domain Name of the Sender

Description: When sending an email message, the TCP/IP stack software must provide the SMTP server with the domain
name of the sender. In some cases, this domain name may be different from the domain name included in the sender's email address.

Syntax: Set Value: **AT#SMTPDOMAIN=<value>**
View Value: **AT#SMTPDOMAIN?**

Values: Alphanumeric ASCII text string up to 120 characters. It will take a blank space also.

Default Value: None

#SMTPRECiADD – Address of the Recipient

Description: To send email messages, the TCP/IP stack software must know the e-mail address of the recipient. This email address will appear in the email header sent by the TCP/IP stack software, in the field 'To:' The RECi value/parameter will hold one e-mail address which can be maximum 120 characters.

Syntax: Set Value: **AT#SMTPRECiADD=<Value> (replace i with 1, 2, or 3)**
View Value: **AT#SMTPRECiADD? (replace i with 1, 2, or 3)**

Values: RECi (i = 1, 2, or 3)
Alphanumeric ASCII text string up to 120 characters. The address must be provided in literal format (for instance xxxxx@company.com). It will take a blank space also.

Default Value: None

#SMTPSUBJi – Subject of Email

Description: These values/parameters contain the pre-defined subject text that will be used by the TCP/IP stack to compose the email header.

Syntax: Set Value: **AT#SMTPSUBJi=<value> (replace i with 1, 2, or 3)**
View Value: **AT#SMTPSUBJi? (replace i with 1, 2, or 3)**

Values: Alphanumeric ASCII text string up to 120 characters. It will take a blank space also.

Default Value: None

#SMTPBODYi – Mail Body

Description: These values/parameters store pre-defined message bodies. They allow the host application to send predefined email combinations.

Syntax: Set Value: **AT#SMTPBODYi=<value> (replace i with 1, 2, or 3).** Then type message body. After completing, give the command **CTRL+D.** This opens AT mode.
View Value: **AT#SMTPBODYi? (replace i with 1, 2, or 3)**

Values: The body content has to be entered after the **AT#BODY1<CR>** command. It has to be an alphanumeric ASCII text string up to 120 characters followed this character: **1A** (in ASCII code) and generated on a keyboard by **CTRL+D**. It will take a blank space also.

Default Value: None

#SMTPPORT – Port of the SMTP Server

Description: To reach the SMTP server, the TCP/IP stack software must know the port of the SMTP server used for sending email. The value/parameter should be changed only by your network administrator since it depends on the network infrastructure configuration including firewalls, proxy or specific TCP port translation settings.

Syntax: Set Value: **AT#SMTPPORT=<value>**
View Value: **AT#SMTPPORT?**

Values: A number between 0 and 65535. A value of zero is not allowed.

Default Value: 25

#SMTPPW – SMTP Account Password

Description: To send email messages, some SMTP servers are using an authentication process. In these cases, the TCP/IP stack software will provide the SMTP password (associated to the SMTP user name) for the email sending process. If this value/parameter is an empty string, the authentication mode is inactive. If both this parameter and the SMTPUN parameter are not empty, the authentication mode is active.

Syntax: Set Value: **AT#SMTPPW=<value>**
View Value: **AT#SMTPPW?**

Values: Alphanumeric ASCII text string up to 120 characters. It will take a blank space also.

Default Value: None

#SMTPSERV – SMTP Server Address

Description: To send email messages the TCP/IP stack software must know the address of the SMTP server that is to be used. In most cases, the local ISP maintains the SMTP server.

Syntax: Set Value: **AT#SMTPSERV=<value>**
View Value: **AT#SMTPSERV?**

Values: 32-bit number in dotted-decimal notation (i.e., xxx.xxx.xxx.xxx) or Alphanumeric ASCII text string up to 120 characters if DNS is available. It will take a blank space also.

Default Value: None

#SMTPUN – SMTP User Name

Description: To send email messages, some SMTP servers use an authentication process. In these cases, the TCP/IP stack software will provide the SMTP user name (associated with a SMTP password) for the email sending process. If this value/parameter is an empty string, the authentication mode is inactive. If both this parameter and the SMTPPW parameter are not empty, the authentication mode is active.

Syntax: Set Value: **AT#SMTPUN=<value>**
View Value: **AT#SMTPUN?**

Values: Alphanumeric ASCII text string up to 120 characters. It will take a blank space also.

Default Value: None

#SMTPSENDMAIL – Send Mail through Interactive Mode

Description: This command allows the attached host to direct the TCP/IP stack to retrieve the first mail present in the POP3 server list. Once an IP link is established, the attached host can retrieve an email message at any time (except when the TCP/IP stack software is already in a process using TCP resources). This command is similar to a “check email box” feature issued by a standard messaging client on a PC.

Syntax: Set Value: **AT#SMTPSENDMAIL**

Values: Sending address
Receiving address
CC address
BCC address
Local Host name
Subject
Username
Password
Server address

Default Value: None

#SMTPSENDMAILi – Send Mail without Interactive Mode

Description: This command sends one of the 3 pre-defined email combinations. Once an IP link is established, the attached host can direct the TCP/IP stack to send an email message at anytime (except when the TCP/IP stack software is already using TCP resources). This email's header is built using the REC1/2/3, CCREC1/2/3 and SUBJ1/2/3 parameters while the body is filled in the BODY1/2/3 parameter. This command is similar to a "send email" operation issued by a standard messaging client on a PC.

Syntax: Set Value: **AT#SMTPSENDMAILi (replace i with 1, 2, or 3)**

Values:
REC1 or REC2 or REC3
CCREC1 or CCREC2 or CCREC3
SUBJ1 or SUBJ2 or SUBJ3
BODY1 or BODY2 or BODY3
SENDERADDR
SENDERNAME
DOMAIN
SMTPPORT
SMTPSERV
SMTPPW
SMTPUN

Default Value: None

#SMTPPUTMAIL – Send Mail to Recipient 1 and CC 1

Description: This command allows the attached host to send an email message passed to the TCP/IP stack over the serial port and requests the message body to be entered. After entering the message, type **Ctrl+D** to end the message and send the email.
Once an IP link is established, the attached host can send the email message at anytime (except when the TCP/IP stack software is already using TCP resources). The header of this email is built using the REC1, CCREC1 and SUBJ1 parameters. This command is similar to a "send email" operation issued by a standard messaging client on a PC.

Syntax: Set Value: **AT#SMTPPUTMAIL**

Values:
REC1
CCREC1
SUBJ1
SENDERADDR
SENDERNAME
DOMAIN
SMTPPORT
SMTPSERV
SMTPPW
SMTPUN

Default Value: None

#SMTPPUTMAIL -B – Send Mail to Recipient 1 and CC 1 with Interactive Mode

Description: This command is used to send mail with MIME Encoded Binary attachments. The SMTP session enters into interactive mode requesting the message body to be entered. After entering the message, type **Ctrl+D** to end the message. The SMTP session then enters into interactive mode requesting media-type, media-subtype, file name, file size and the attachment body. When the attachment body reaches the file size, another message displays asking whether to continue with one or more attachments. Type '**Y**' for more attachments and type '**N**' to send mail. Then the email with its attachment is sent to the to-addresses and cc-addresses configured.

Syntax: Set Value: **AT#SMTPPUTMAIL -B**

Values: None

#SMTPVERBOSE – Verbose Mode

Description: This command enables or disables server responses.

Syntax: Set Value: **AT#SMTPVERBOSE=<Value>**
View Value: **AT#SMTPVERBOSE?**

Values: 0: Disable
1: Enable

Default: 1: Enable

#SMTP? – SMTP Module

Description: Directs the TCP/IP stack to display all the AT# values/parameters related to the email sender configuration.

Syntax: View Values: **AT#SMTP?**

Values: DOMAIN
SENDERADDR
SENDERNAME
CCADDRESS1
CCADDRESS2
CCADDRESS3
RECADDRES1
RECADDRESS2
RECADDRESS3
SUBJ1TXT
SUBJ2TXT
SUBJ3TXT
MESSAGEBODY1TEXT
MESSAGEBODY2TEXT
MESSAGEBODY3TEXT
SMTPPORT
SMTPPW
SMTPSERV
SMTPUN

Default Value: None

Chapter 5 – TCP Commands

#TCPDLEMODE – Coding the ETX Character

Description: When using a socket TCP, the attached host has the choice whether or not to code the ETX character.

Syntax: Set Value: **AT#TCPDLEMODE=<value>**
View Value: **AT#TCPDLEMODE?**

Values:
0 When DLEMODE is set to 0, no specific process is needed on [ETX] characters. It means that it is not possible for a host to request an end of connection or to receive a clear indication of the end of a connection from the TCP/IP stack. Termination of the TCP or UDP connection will be based on PIO (DTR) or +++ escape sequence.

1 When DLEMODE is set to 1, the [ETX] character means a request or an indication of end of connection. As a consequence, [ETX] characters that belong to the payload data must be sent by the host on the serial port preceded by a DLE character. Similarly, ETX characters received by the TCP/IP stack from the Internet are sent to the host through the serial port preceded by a DLE character.

Default Value: 0 Disable

#TCPPORT – Port of Remote Peer Used for TCP Session

Description: To exchange data over TCP, the TCP/IP stack software must know the port of the remote peer used for the TCP session.

Syntax: Set Value: **AT#TCPPORT=<value>**
View Value: **AT#TCPPORT?**

Values: From 1 to 5 digits (each digit between 0 and 9 inclusive). Note that numbers above 65,535 are illegal as the port identification fields are 16 bits long in the TCP header.

Default Value: 1234

#TCPSERV – Address of the Remote TCP Server

Description: To exchange data over TCP, the TCP/IP stack software must know the address of the remote TCP server (or host) that is to be used.

Syntax: Set Value: **AT#TCPSERV=<value>**
View Value: **AT#TCPSERV?**

Values: 32-bit number in dotted-decimal notation (i.e., xxx.xxx.xxx.xxx) or Alphanumeric ASCII text string up to 120 characters if DNS is integrated. It will take a blank space also.

Default Value: None

#TCPTXDELAY – Time Delay Before Sending a TCP Frame

Description: This parameter determines the time delay introduced before sending a TCP frame that has not been entirely filled with user data. The time is entered in milliseconds, and it should be noted that a value of 0 initiates the sending of a TCP frame as soon as possible after the reception of a single character value from the host.

Syntax: Set Value: **AT#TCPTXDELAY=<value>**
View Value: **AT#TCPTXDELAY?**

Values: Integer multiple of 20 between 0 and 32760 inclusive.

Default Value: 0

#TCPLISTEN – Open a Listening TCP Connection

Description: This command, sent by the attached host, directs the TCP/IP stack to open a listening TCP connection on the specified TCP port. Once an IP link is established, the attached host can open a listening TCP socket at any time (except when the TCP/IP stack software is already in a process using TCP resources).

The TCP connection will be active upon reception of a TCP connection request sent by a remote allowed TCP peer (TCPSERV) on the appropriate TCP port (TCPPORT).

Once opened, this TCP connection may be closed by the remote TCP peer or by the attached host by sending an ETX character on the serial port (depending on the DLEMODE parameter).

Notes:
The LTCP command can be aborted before an incoming TCP request has been received by issuing an <ETX> character on the serial port.

If the DLEMODE parameter is set to 1, the TCP/IP stack will interpret an <ETX> character only as a close request if a <DLE> character does not precede it. As a consequence, the attached host must send <ETX> characters preceded by <DLE> characters, and it must also code <DLE> characters in <DLE><DLE>.

Syntax: Set Value: **AT#TCPLISTEN=<TCP Port Number>**

Values: TCP Port Number

Default Value: None

#TCPSTOP – Close TCP Listening Mode

Description: This command directs the TCP/IP stack to close TCP listening mode (previously launched by the AT#TCPLISTEN command.

Syntax: Set Value: **AT#TCPSTOP**

Values: TCP Port Number

Default Value: None

#TCPOPEN – Open a TCP Connection

Description: This command sent by the attached host directs the TCP/IP stack to open a TCP connection to the specified TCP server. Once an IP link is established, the attached host can open a TCP connection at any time (except when the TCP/IP stack software is already in a process using TCP resources). This TCP connection may be closed by the remote TCP server or by the attached host via sending an ETX character on the serial port (depending on the DLEMODE parameter).

Syntax: Set Value: **AT#TCPOPEN=<IP Address, TCP Port Number>**

Values: xxx.xxx.xxx.xxx (format of IP Address)
TCP Port Number

Default Value: None

#TCP? – TCP Module Configuration

Description: This command directs the TCP/IP stack to display all the AT# parameters related to the TCP socket configuration.figuration

Syntax: View Values: **AT#TCP?**

Values:

DLEMODE	TCPTXDELAY
TCPPORT	TCPAUTOCONNECT
TCPSERV	

Default Value: None

#TCPAUTOCONNECT – Auto Connect to TCP Server

Description: Commands to activate auto connect to TCP server can be used after power on. This will allow legacy devices to be on the network without having to do any programming.

Syntax: Set Value: **AT#TCPAUTOCONNECT=<value>**
View Value: **AT#TCPAUTOCONNECT?**

Values: 0: Manually connect by giving AT commands (Disabled)
1: automatically connect to pre-configured IP address, port (Enabled)

Default Value: 0: Disabled

#UDPPORT – UDP Port Number

Description: If the UDP session is initiated in listen mode, use the local UDP port number. If the UDP session is initiated in active mode, use the remote UDP port number.

Syntax: Set Value: **AT#UDPPORT=<Value>**
View Value: **AT#UDPPORT?**

Values: From 1 to 5 numeric digits (0 to 9).
Notes: Numbers above 65,535 are illegal as the port identification fields are 16-bits long in the IP header. Port number 0 is illegal.

Default Value: 1234

#UDPSERV – UDP Server Address

Description: If the UDP session is initiated in listen mode, use the IP address filter. This means that the remote must have a defined UDPSERV IP address. If the UDP session is initiated in active mode, use the remote IP address.

Syntax: Set Value: **AT#UDPSERV=<Value>**
View Value: **AT#UDPSERV?**

Values: 32-bit number is dotted-decimal notation (i.e., xxx.xxx.xxx.xxx) or Alphanumeric ASCII text string up to 120 characters if DNS is integrated.

Default Value: None

#UDPTXDELAY – Delay before Sending UDP Datagram

Description: This parameter determines the delay before sending an UDP datagram that has not been entirely filled with user data. The delay is expressed in milliseconds. The 0 value initiates the sending an UDP datagram as soon as possible after the reception of a single character value from the host.

Syntax: Set Value: **AT#UDPTXDELAY=<Value>**
View Value: **AT#UDPTXDELAY?**

Values: Integer, multiple of 20 and between 0 and 32760 inclusive.

Default Value: 0

#UDPSTART – Initiate the UDP Session in Listen Mode

Description: Once an IP link is established, and if no other TCP/IP stack resource is active, this command sent by the attached host directs the TCP/IP stack to initiate the UDP session in listen mode on the specified UDP local port UDPPORT (depending on the UDPSERV parameter content).

Syntax: Set Value: **AT#UDPSTART**

Values: UDPPORT
UDPTXDELAY

Default Value: None

#UDPSTOP – Close the UDP Listening Mode

Description: This command directs the TCP/IP stack to close a UDP listening mode session previously launched by the AT#LUDPSTART command.

Syntax: Set Value: **AT#UDPSTOP**

Values: UDPPORT

Default Value: None

#UDPOPEN – Initiate UDP Session in Active Mode

Description: Once an IP link is established, and if no other TCP/IP stack resource is active, this command sent by the attached host directs the TCP/IP stack to initiate an UDP session in active mode on the specified UDP remote port UDPPORT to the specified remote IP address UDPSERV.
The host can then transmit to the UDPPORT or UDPSERV address.
Datagrams can only be received from this UDPPORT or UDPSERV address.

Syntax: Set Value: **AT#UDPOPEN**

Values: UDPPORT
UDPSERV
UDPTXDELAY

Default Value: None

#UDP? – UDP Module

Description: Directs the TCP/IP stack to display all the AT# parameters related to the UDP socket configuration.

Syntax: View Values: **AT#UDP?**

Values: UDPPORT
UDPSERV
UDPTXDELAY

Default Value: None

#CONTERMINATE – Termination of TCP/UDP Connection

Description: This command is used to set the option of termination of connection. The options are termination of connection through PIO or termination of connection through escape sequence.

Syntax: Set Value: **AT#CONTERMINATE=<value>** (The value will be stored to the serial flash)
View: **AT#CONTERMINATE?**

Values: 0: Termination of connection through GPIO
1: Termination of connection through escape sequence
2: No termination from the local host

Default Value: 0

#TCPLISTENLIST – List the Listening TCP Ports

Description: This command lists the number of TCP listening ports.

Syntax: **AT#TCPLISTENLIST**

Values: NA

#TCPAUTOLISTEN – Enable/Disable Auto Listen

Description: This command is used to enable/disable auto listen on boot up.

Syntax: Set Value: **AT#TCPAUTOLISTEN=<value>**
View: **AT#TCPAUTOLISTEN?**

Values: 0: Disable
1: Enable

Default: 0

Chapter 6 – POP3 Commands

#POP3HEADERMODE – POP3 Header

Description: When receiving an email message, the TCP/IP stack can be configured to send or not to send the POP3 header over the serial port. The POP3 header contains the From, Cc and Subject fields.

Syntax: Set Value: **AT#POP3HEADERMODE=<value>**
View Value: **AT#POP3HEADERMODE?**

Values: 0 The email header will not be sent over the serial port while retrieving.
1 The email header will be sent over the serial port while retrieving

Default Value: Enabled

#POP3PORT – Port of the POP3 Server

Description: To reach the POP3 server, the TCP/IP stack software must know the port of the POP3 server used for retrieving email.
Note: This parameter should be changed only by your network administrator since it depends on network infrastructure configuration including firewalls, proxy or specific TCP port translation settings.

Syntax: Set Value: **AT#POP3PORT=<value>**
View Value: **AT#POP3PPORT?**

Values: A number between 0 and 65535. A value of zero is not allowed.

Default Value: 110

#POP3PW – Password of the POP3 Account

Description: Password for POP3 account. To retrieve email messages sent to a specified email address, the TCP/IP stack software must know the POP3 password that has been set for that email account.

Syntax: Set Value: **AT#POP3PW=<value>**
View Value: **AT#POP3PW?**

Values: Alphanumeric ASCII text string up to 120 characters. It will take a blank space also.

Default Value: None

#POP3SERV – Address of the POP3 Server

Description: To retrieve email messages, the TCP/IP stack software must know the address of the POP3 server that is to be used. The POP3 server must be the one where the specified email account is hosted (which is not necessarily maintained by the local ISP).

Syntax: Set Value: **AT#POP3SERV=<value>**
View Value: **AT#POP3SERV?**

Values: 32-bit number in dotted-decimal notation (i.e., xxx.xxx.xxx.xxx) or
Alphanumeric ASCII text string up to 120 characters if DNS is available. It will take a blank space also.

Default Value: None

#POP3UN – User Name of the POP3 Account

Description: User name for POP3 account. To retrieve email messages sent to a specified email address, the TCP/IP stack software must know the POP3 user name that has been set for that email account.

Syntax: Set Value: **AT#POP3UN=<value>**
View Value: **AT#POP3UN?**

Values: Alphanumeric ASCII text string up to 120 characters if DNS is available. It will take a blank space also.

Default Value: None

#POP3RECVMAILLIST – List of Emails in Inbox

Description: This command retrieves a list of emails from the mailbox. Displays the index of emails and size in bytes.

Syntax: Set Value: **AT#POP3RECVMAILLIST <index>**

Values: None

Default Value: None

#POP3RECVMAILHEAD – Header Information of the Mail

Description: This command receives the header information of all the mails present in the mailbox if index is not given. If index is given, the mail header corresponding to the index is retrieved.

Syntax: Set Value: **AT#POP3RECVMAILHEAD <index>**

Values: None

Default Value: None

#POP3RECVMAIL – Receive Mail

Description: This command retrieves all the pending mails present in the mailbox if index is not given. If index is given the mail corresponding to the index is retrieved.

Syntax: Set Value: **AT#POP3RECVMAIL <index>**

Values: None

Default Value: None

#POP3DELMAIL – Delete Mail from Inbox

Description: Delete mail from server. If index is given with command, then it deletes the email having that index.

Syntax: Set Value: **AT#POP3DELMAIL <index>**

Values: None

Default Value: None

#POP3? – POP3 Module

Description: Directs the TCP/IP stack to display all the AT# parameters related to the email retriever configuration.

Syntax: View Values: **AT#POP3?**

Values: POP3HEADERMODE
POP3PORT
POP3PW
POP3SERV
POP3UN

Default Value: None

#POP3UNIQUEIDLIST – Receive Unique Email ID of the Message

Description: This command retrieves the unique email ID of the messages.

Syntax: Set Value: **AT#POP3UNIQUEIDLIST**

Values: None

Default Value: None

#POP3GETMAIL or #POP3RECVMAIL – Receive All Emails

Description: This command receives all the emails present in the mail box.

Syntax: Set Value: **AT#POP3GETMAIL** or **AT#POP3RECVMAIL**

Values: None

Default Value: None

#POP3RECVTOP – Receive Top Lines of an Email

Description: This command reads top ***t*** lines of ***nth*** email.

Syntax: Set Value: **AT#POP3RECVTOP <n><t>**

Values: n: e-mail index
t: number of lines to read

Default Value: None

#POP3VERBOSE – Verbose Mode

Description: This command enables or disables server responses.

Syntax: Set Value: **AT#POP3VERBOSE=<Value>**
View Value: **AT#POP3VERBOSE?**

Values: 0: Disable
1: Enable

Default: 1: Enable

Chapter 7 – FTP Commands

#FTPPORT – Port of the FTP Server

Description: To reach the FTP server, the TCP/IP stack software must know the control port of the FTP server used for file transfer.

Note: This parameter should be changed only upon request of your network administrator since it applies to network infrastructure including firewalls, proxy or specific TCP port translation.

Syntax: Set Value: **AT#FTPPORT=<value>**
View Value: **AT#FTPPORT?**

Values: A number between 0 and 65535. A value of zero is not allowed.

Default Value: 21

#FTPMODE – FTP Mode

Description: Define the FTP behavior for file transfer.

Syntax: Set Value: **AT#FTPMODE=<value>**
View Value: **AT#FTPMODE?**

Values: 0 FTP Active Mode
1 FTP Passive Mode

Default Value: 0 FTP Active Mode

#FTPTYPE – Type of FTP Session

Description: Before transferring files from a specified FTP server, the TCP/IP stack software must specify the type of data to be transferred within the FTP session.

Syntax: Set Value: **AT#FTPTYPE=<value>**
View Value: **AT#FTPTYPE?**

Values: 0 ASCII sessions
1 Binary sessions (upper case i letter)

Default Value: 0 ASCII sessions

#FTPSERV – FTP Server Address

Description: To connect to an FTP server to download files, the TCP/IP stack software must know the address of the FTP server that is to be used.

Syntax: Set Value: **AT#FTPSERV=<value>**
View Value: **AT#FTPSERV?**

Values: 32-bit number in dotted-decimal notation (i.e., xxx.xxx.xxx.xxx) or alphanumeric ASCII text string up to 120 characters if DNS is available. It will take a blank space also.

Default Value: None

#FTPUN – User Name of the FTP Server

Description: Before transferring files from a specified FTP server, the TCP/IP stack software must open an FTP session using a valid FTP user name.

Syntax: Set Value: **AT#FTPUN=<value>**
View Value: **AT#FTPUN?**

Values: Alphanumeric ASCII text string up to 120 characters. It will take a blank space also.

Default Value: None

#FTPPW – Password of the FTP Server

Description: Before transferring files from a specified FTP server, the TCP/IP stack software must open an FTP session using a valid FTP password.

Syntax: Set Value: **AT#FTPPW=<value>**
View Value: **AT#FTPPW?**

Values: Alphanumeric ASCII text string up to 120 characters. It will take a blank space also.

Default Value: None

#FTPGETFILENAME – Name of the Downloadable File from the FTP Server

Description: In order to download a file from the FTP server, the TCP/IP stack software must know the name of the relevant file.

Syntax: Set Value: **AT#FTPGETFILENAME=<value>**
View Value: **AT#FTPGETFILENAME?**

Values: Alphanumeric ASCII text string up to 120 characters. It will take a blank space also.

Default Value: None

#FTPPUTFILENAME – Name of the Uploadable File to the FTP Server

Description: In order for the TCP/IP stack software to upload a file to the FTP server, the TCP/IP stack software must know the name of the relevant file.

Syntax: Set Value: **AT#FTPPUTFILENAME=<value>**
View Value: **AT#FTPPUTFILENAME?**

Values: Alphanumeric ASCII text string up to 120 characters. It will take a blank space also.

Default Value: None

#FTPDIR – Path of Files to Upload and Download

Description: In order for the TCP/IP stack software to upload a file to the FTP server, the TCP/IP stack software must know the path of the relevant file. For example, it could be: /list

Syntax: Set Value: **AT#FTPDIR=<value>**
View Value: **AT#FTPDIR?**

Values: Alphanumeric ASCII text string up to 120 characters. It will take a blank space also.

Default Value: None

#FTPFILESIZE – Size of the File to Upload to the FTP Server

Description: In order for the TCP/IP stack software to upload a file to the FTP server, the TCP/IP stack software must know the size of the file to be transmitted. Size of the file is used as the indicator for end of transmission.

Syntax: Set Value: **AT#FTPFILESIZE=<value>**
View Value: **AT#FTPFILESIZE?**

Values: The maximum value of 4 byte unsigned integer number. To transfer files of more file size use the #FTPCSTART command (Interactive mode).

Default Value: None

#FTPGET – Download Files from the FTP Server

Description: This command, sent by the attached host, directs the TCP/IP stack to connect to the specified FTP server and to retrieve the specified file from this server. Once the operation is completed, the TCP/IP stack closes the FTP connection.
Once an IP link is established, the attached host can retrieve a file from an FTP server at any time (except when the TCP/IP stack software is already in a process using TCP resources).
This command is similar to a GET operation (with an automatic connect/disconnect) issued by a standard FTP client on a PC.
The TCP/IP stack handles the global FTP process by itself.

Syntax: Set Value: **AT#FTPGET**

Values: FTPGETFILENAME
FTPDIR
FTPPORT
FTPSERV
FTPTYPE
FPTMODE
FTPPW
FTPUN

Default Value: None

#FTPPUT – Upload Files to the FTP Server

Description: This command sent by the attached host directs the TCP/IP stack to connect to the specified FTP server and to upload the data received on the serial port to the specified file on this server. Once the operation is completed, the TCP/IP stack closes the FTP connection.
Once an IP link is established, the attached host can send a file to a FTP server at any time (except when
the TCP/IP stack software is already in a process using TCP resources).
This command is similar to a PUT operation (with an automatic connect/disconnect) issued by a standard FTP client on a PC.
The TCP/IP stack handles the global FTP put process by itself.

Syntax: Set Value: **AT#FTPPUT**

Values: FTPPUTFILENAME
FTPDIR
FTPPORT
FTPSERV
FTPTYPE
FTPMODE
FTPPW
FTPUN

Default Value: None

#FTPCSTART – FTP Interactive Mode

Description: The module will go into interactive mode. It will ask for all the configuration parameters first.

Syntax: Set Value: **AT#FTPCSTART**

Values: FTP Port number:
FTP mode: (0: active, 1: passive)
FTP type: (binary)

Default Value: None

#FTPVERBOSE – Verbose Mode

Description: This command enables or disables server responses.

Syntax: Set Value: **AT#FTPVERBOSE=<Value>**
View Value: **AT#FTPVERBOSE?**

Values: 0: Disable
1: Enable

Default: 1: Enable

#FTP? – FTP Module

Description: This command directs the TCP/IP stack to display all AT# parameters for the FTP client configuration.

Syntax: View Value: **AT#FTP?**

Values: FTPSERV
FTPPORT
FTPUN
FTPPW
FTPGETFILENAME
FTPFILESIZE
FTPPUTFILENAME
FTPDIR
FTPTYPE
FTPMODE

Default Value: None

Chapter 8 – UART Commands

#UARTBAUDRATE – Set UART Baud Rate

Description: Sets the UART baud rate.

Syntax: Set Value: **AT#UARTBAUDRATE=<value>**
View Value: **AT#UARTBAUDRATE?**

Values: 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, 230400

Default Value: 115200

#UARTDATABITS – Set Number of Data Bits

Description: Sets the number of data bits.

Syntax: Set Value: **AT#UARTDATABITS=<value>**
View Value: **AT#UARTDATABITS?**

Values: 5, 6, 7, 8

Default Value: 8

#UARTPARITY – Set Parity Type

Description: Sets the parity type.

Syntax: Set Value: **AT#UARTPARITY=<value>**
View Value: **AT#UARTPARITY?**

Values: 0 = None
1 = Odd
2 = Even

Default Value: 0 = None

#UARTSTOPBITS – Set Number of Stop Bits

Description: Sets the number of stop bits.

Syntax: Set Value: **AT#UARTSTOPBITS=<value>**
View Value: **AT#UARTSTOPBITS?**

Values: 1, 2

Default Value: 1

#UARTFLOWCONTROL – Set Flow Control Type

Description: Sets the flow control type.

Syntax: Set Value: **AT#UARTFLOWCONTROL=<value>**
View Value: **AT#UARTFLOWCONTROL?**

Values: 0 = None
1 = Hardware (RTS/CTS)

Default Value: 0 = None

#UART? – UART Configurations

Description: This command displays the UART Configurations.

Syntax: **AT#UART?**

Values: BAUDRATE
DATABITS
PARITY
STOPBITS
FLOWCONTROL

Chapter 9 – Miscellaneous Commands

#VVERSION – Software Version

Description: This command directs the TCP/IP stack to display the software version.
Syntax: Set Value: **AT#VVERSION**
Values: No TCP/IP parameters
Default Value: None

#VSTATE – Display the Current Status of the Device

Description: This command directs the TCP/IP stack to display the current status of the device.
Syntax: Set Value: **AT#VSTATE**
Values: No TCP/IP parameters
Default Value: None

#VALL – Display All AT Parameters

Description: This command directs the TCP/IP stack to display all AT# parameters. The parameters are displayed by blocks of categories separated by a <CR><LF> sequence, all at the same time.
Syntax: Set Value: **AT#VALL**
Values: Read parameters. All parameters.
Default Value: None

&F – Restore Default Factory Settings

Description: This command restores the default factory settings value for the whole IP module.
Syntax: Set Value: **AT&F**
Values: No parameter values.
Default Value: None

A/ – Previous Command

Description: This command executes the previous command.
Syntax: **A/**
Values: No parameter values.
Default Value: None

#RESET – Restart the Module

Description: Restarts our module from the command prompt.
Syntax: Set Value: **AT#RESET**
Values: None
Default Value: None

E – Turn Echo ON/OFF

Description: Use this command to turn ON/OFF echoing command at the serial terminal.
Syntax: Set Value: **ATE**
Values: No parameter values.
Default Value: None

S2 – Escape Sequence

Description: Use this command to change the character for escape sequence.
Syntax: Set Value: **ATS2=<+>**
Values: 'c' value, which is used as the escape sequence
Default: '+'

#WATCHDOG – Enable/Disable Watchdog

Description: Enable/disable Watchdog for the system – reset on HANG.
Syntax: Set Value: **AT#WATCHDOG**
View Value: **AT#WATCHDOG?**
Values: 0: Disable Watchdog
1: Enable Watchdog
Default Value: 1: Enable Watchdog

#WATCHDOGTIMER – Watchdog Timer

Description: Sets the Watchdog timer in milliseconds.
Syntax: Set Value: **AT#WATCHDOGTIMER**
View Value: **AT#WATCHDOGTIMER?**
Values: Maximum milliseconds that can be entered is 7000
Default Value: 1000ms

#BOOTMSG – Enable/Disable Boot Message

Description: Enables/disables the boot message.
Syntax: Set Value: **AT#BOOTMSG**
View Value: **AT#BOOTMSG?**
Values: 0 Disable
1 Enable
Default: 1 Enable

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